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PANASONIC CT-25G5B SERVICE MANUAL

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ORDER NO. MTNC000664A1
B5

Service Manual

Color Television

Simplified

Main Manual

(NA6LV)

Panasonic

Models	Chassis
CT-25G5B	**AP356M**
CT-25G5UB	**AP356M**

This Simplified Service Manual is issued to add listed models to the main Service Manual order No. MTNC000146C1(CT-27G5B/CB/UB). A full set of Schematics, Pictures and a complete Parts List are included in this Simplified Manual. Please file and use this Service Manual together with the Main Service Manual, order No. MTNC000146C1(CT-27G5B/CB/UB).

"**WARNING!** This Service Manual is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. **Products powered by electricity should be serviced or repaired only by experienced professional technicians.** Any attempt to service or repair the product or products dealt with in this Service Manual by anyone else could result in serious injury or death."

The service technician is required to read and follow the "**Safety Precautions**" and "**Important Safety Notice**" in this Main Manual.

Panasonic®

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Important Safety Notice

Special components are used in this television set which are important for safety. These parts are identified on the schematic diagram by the symbol ⚠ and printed in **BOLD TYPE** on the replacement part list. It is essential that these critical parts are replaced with the manufacturer's specified replacement part to prevent X-ray radiation, shock, fire or other hazards. Do not modify the original design without the manufacturer's permission.

Safety Precautions

General Guidelines

An **Isolation Transformer** should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect the Receiver from being damaged by accidental shorting that may occur during servicing.

When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

Always Replace Protective Devices, such as fishpaper, isolation resistors and capacitors, and shields after servicing the Receiver. Use only manufacturer's recommended rating for fuses, circuits breakers, etc.

High potentials are present when this Receiver is operating. Operation of the Receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautions when servicing high-voltage equipment.

Extreme care should be practiced when **Handling the Picture Tube**. Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, use safety goggles and heavy gloves for protection. **Discharge the picture tube** by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a well insulated wire or use a grounding probe.

Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to X-ray radiation.

The **Test Picture Tube** used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against X-ray radiation as well as implosion. The magnetic shield limits the X-ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling **37.69kV** without causing X-ray radiation.

Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. **Do not use a line isolation transformer when testing.**

Leakage Current Cold Check

Unplug the AC cord and connect a jumper between the two plug prongs.

Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna terminals, control shafts, etc. If the exposed metallic part has a return path to the chassis, the reading should be between 240kΩ and 5.2MΩ. If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

Leakage Current Hot Check (Fig. 1)

Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check.

Connect a 1.5kΩ 10 watt resistor in parallel with a 0.15μF capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.

Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor.

Repeat the procedure and measure the voltage present with all other exposed metallic parts.

Verify that any potential does not exceed 0.75 volt RMS. A leakage current tester (such a Simpson Model 229, Sencore Model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 1/2 milliamp. If any measurement is out of the specified limits, there is a possibility of a shock hazard and the Receiver must be repaired and rechecked before it is returned to the customer.

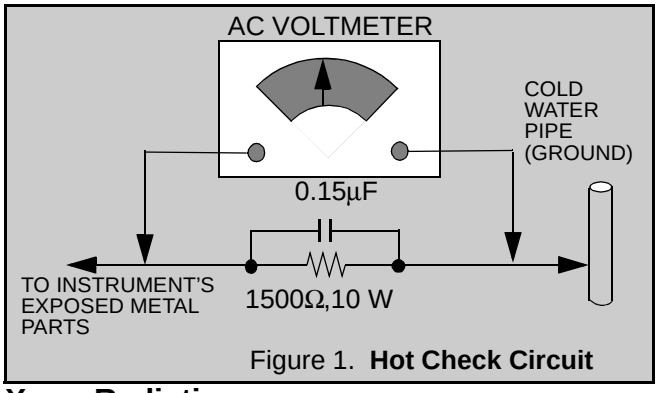

Figure 1. **Hot Check Circuit**

X-ray Radiation

WARNING: The potential source of X-ray radiation in the TV set is in the High Voltage section and the picture tube.

Note: *It is important to use an accurate, calibrated high voltage meter.*

Set the **brightness, picture, sharpness** and **color** controls to Minimum. Measure the High Voltage. The high voltage should be **29.25kV ± 1.25kV**. If the upper limit is out of tolerance, immediate service and correction is required to insure safe operation and to prevent the possibility of premature component failure.

Horizontal Oscillator Disable Circuit Test

This test must be performed as a final check before the Receiver is returned to the customer. See Horizontal **Oscillator Disable Circuit Procedure Check** in this manual.

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Service Notes

Note: These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

Leadless Chip Component (surface mount)

Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board, however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.

Chip resistor have a three digit numerical resistance code - 1st and 2nd significant digits and a multiplier. Example: 162 = 1600 or 1.6kΩ resistor, 0 = 0Ω (jumper).

Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.

Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.

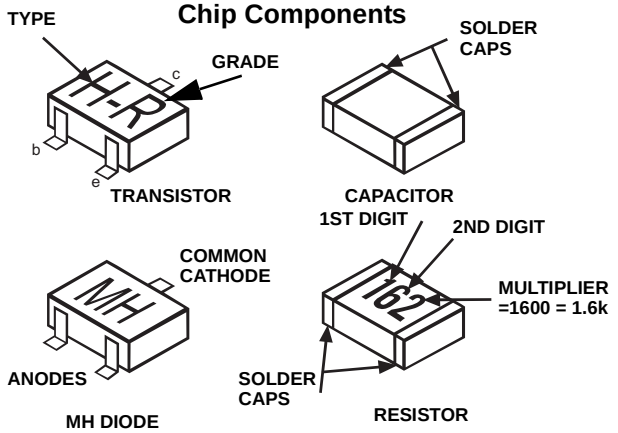
Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

Component Removal

1. Use solder wick to remove solder from component end caps or terminal.
2. Without pulling up, carefully twist the component with tweezers to break the adhesive.
3. Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.

Chip Component Installation

1. Put a small amount of solder on the board soldering pads.
2. Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.

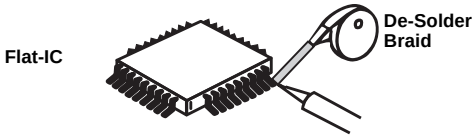


How to Replace Flat-IC

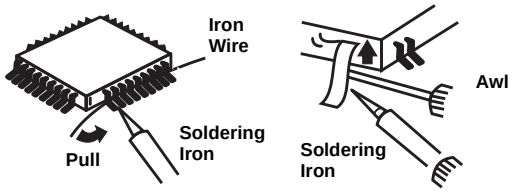
- Required Tools -

- Soldering iron
- De-solder braids
- Iron wire or small awl
- Magnifier

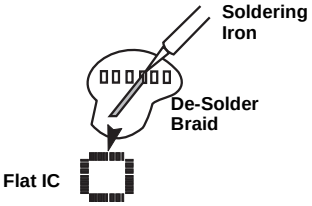
1. Remove the solder from all of the pins of a Flat-IC by using a de-solder braid.



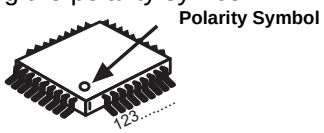
2. Put the iron wire under the pins of the Flat-IC and pull it in the direction indicated while heating the pins using a soldering iron. A small awl can be used instead of the iron wire.



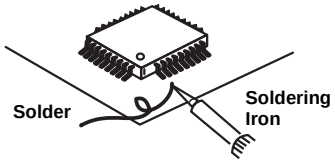
3. Remove the solder from all the pads of the Flat-IC by using a de-solder braid.



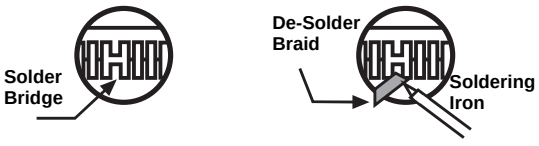
4. Position the new Flat-IC in place (apply the pins of the Flat-IC to the soldering pads where the pins need to be soldered). Properly determine the positions of the soldering pads and pins by correctly aligning the polarity symbol.



5. Solder all pins to the soldering pads using a fine tipped soldering iron.



6. Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de-solder braid as shown in the figure below.



Service Notes (Continued)

IMPORTANT: To protect against possible damage to the solid state devices due to arcing or static discharge, make certain that all ground wires and CTR DAG wire are securely connected.

CAUTION: The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the Receiver to avoid damage to the test equipment or to the chassis. Connect the test equipment to the proper ground (⏚) or (⏚) when servicing, or incorrect voltages will be measured.

WARNING: This Receiver has been designed to meet or exceed applicable safety and X-ray radiation protection as specified by government agencies and independent testing laboratories.

To maintain original product safety design standards relative to X-ray radiation and shock and fire hazard, parts indicated with the symbol ⚠ on the schematic must be replaced with identical parts. Order parts from the manufacturer's parts center using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.

For optimum performance and reliability, all other parts should be replaced with components of identical specification.

Horizontal Oscillator Disable Circuit

This chassis employs a special circuit to protect against excessive high voltage and beam current. If, for any reason, the high voltage and beam current exceed a predetermined level this protective circuit activates and detunes the horizontal oscillator that limits the high voltage. The over-voltage protection circuit is not adjustable. However, if components indicated by the symbol ⚠ on the schematic in either the horizontal sweep system or the over-voltage protection circuit itself are changed, the operation of the circuit should be checked using the following procedure:

Equipment needed to check the disabled circuit:

1. Voltmeter (0 - 200V scale)

2. High Voltage Meter (0- 50kV)

3. Variac or Isolation Transformer

Procedure:

1. Tune in a station to verify that the horizontal is in sync.

2. Obtain a Monoscope pattern or a signal generator crosshatch pattern

3. Connect the voltmeter (-) lead to TPD2 and the (+) lead to TPD1 (junction of D555 anode, R556 & R557). Set **Bright** level to (0) and **Picture** for a 1.8 volt reading on the voltmeter.

4. Turn the Receiver OFF. Connect a jumper across IC803 pin 3 and pin 4. Apply +9V DC to cathode of D001.

5. Reduce the AC supply voltage to approximately 45V. Connect the high voltage meter to the CRT anode. (H.V. button).

Note: *Use the Dag Ground (C10 on the CRT Board) to connect the (-) lead of the meter.*

6. Turn the Receiver ON. Slowly increase the AC supply voltage and verify that the high voltages does not exceed **37.1kV** when horizontal; just begins to pull out of sync. If the high voltage is not within the specified limit, the cause must be determined and corrected before the Receiver is returned to the customer.

Receiver Feature Table

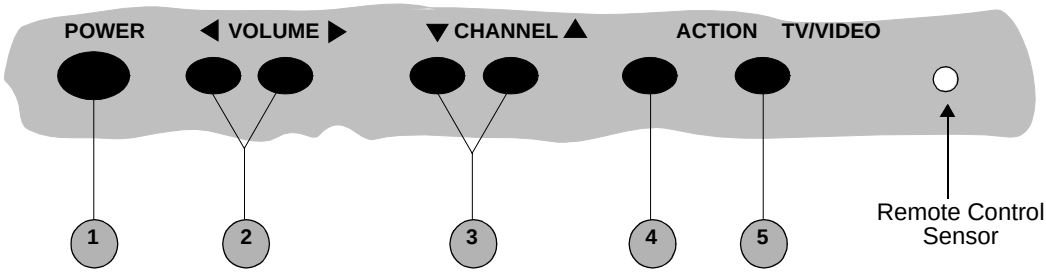
FEATURE\MODEL	CT-25G5B/UB
Chassis	NA6LV
Tunning system	40K
# of channels	181
Menu language	Eng/Span/Fr
Closed Caption	X
V-Chip	X
75 Ω input	X
Remote Model #	EUR501450
Picture tube	A63QDB891X
Notch filter	P
V/A norm	V
AI Sound	X
Built-in audio power	1.5Wx2 (10%)
# of speakers	2
A/V in (rear/front)	2(1/1)
Dimensions mm (WxDxH) in	600x665x634 23.62x26.18x24.96
Weight (kg/lbs)	34.25/75.35
Power source (V/Hz)	120/60
Anode voltage	29.25kV ± 1.25kV
Video input jack	$1V_{p-p}$ 75Ω, phono jack
Audio input jack	500mV RMS 47kΩ
A-Board TNP2AH018	AB
C-Board TNP2AA062	AD

Table 1. **Receiver Features**

Specifications are subject to change without notice or obligation.
Dimensions and weights are approximate.

Location of Controls (Receiver)

Figure 2. **Location of Controls (Receiver).**



Quick Reference Control Operation

Quick Reference Control Operation	
1	**Power Button -** Press to turn ON or OFF.
2	**Volume Buttons -** Press to adjust Sound Level, or to adjust Audio Menus, Video Menus, and select operating features when menus are displayed
3	**Channel Buttons -** Press to select programmed channels. Press to highlight desired features when menus are displayed. Also use to select Cable Converter box channels after programming Remote Control Infra-red codes (the TV/AUX/CABLE switch must be set in CABLE position).
4	**Action Button -** Press to display Main Menu and access On Screen feature and Adjustment Menus.
5	**TV/Video Button -** Press to select TV or Video Input.

Location of Controls (Remote) Cont.

Power Button
Press to turn ON and OFF.
Mute Button
Press to mute sound. A second press resumes sound. Press also to access and delete Closed Caption display.
TV/Video Button
Press to select TV or Video input.
Volume Buttons
Press to adjust TV sound level. Use with Channel buttons to navigate in menus.
Channel Buttons
Press to select channels. Use with volume buttons to navigate in menus.
Action Button
Press to display Main Menu and access or exit On Screen features and Adjustment Menus.
Keypad Buttons
Press desired channel number to randomly access any channel.
R-Tune (Rapid Tune) Button.
Press to switch to the previous channel.
Recall Button
Press to display Time, status of Sleep Timer, Channel, Video mode and Channel Caption (Station Identifier).

EUR501450

Figure 3. **Location of Controls (Remote)**.

Component Identification

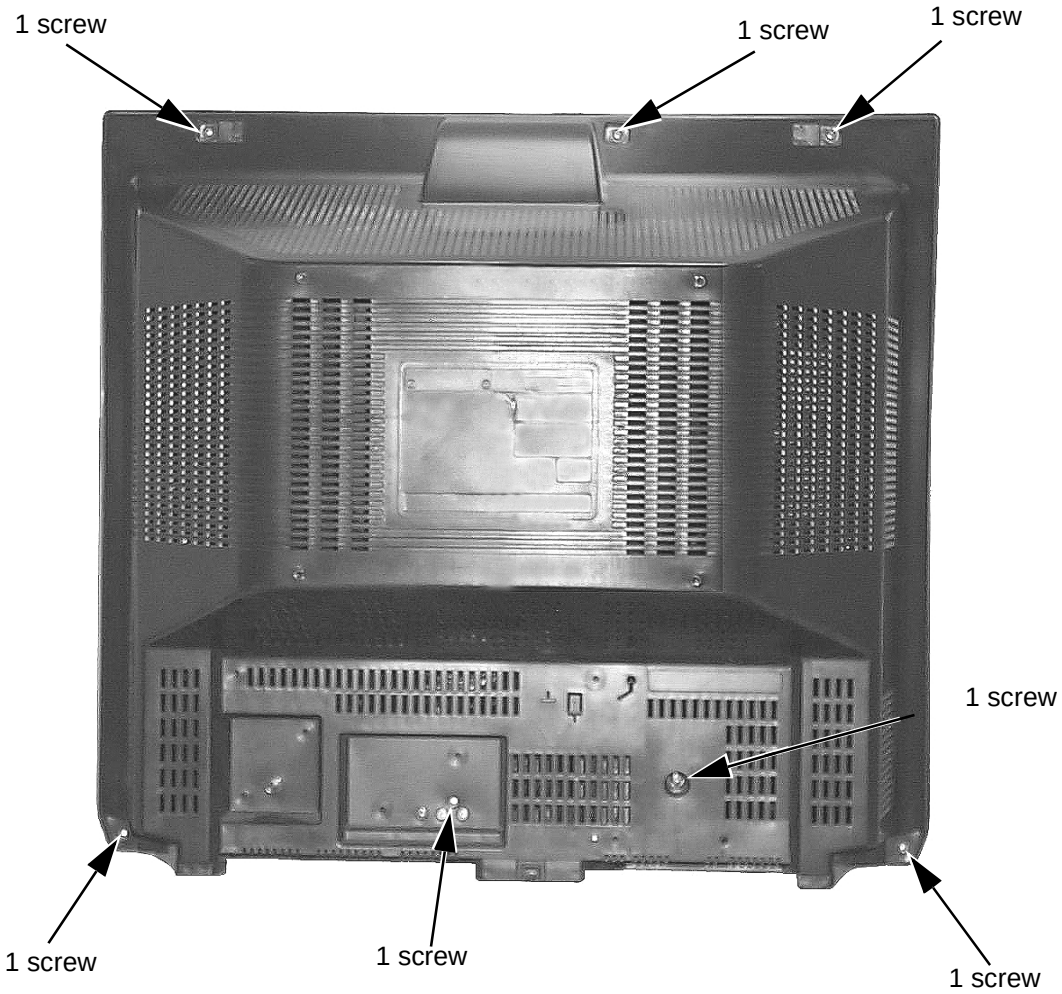


Figure 4. **Back of Television**

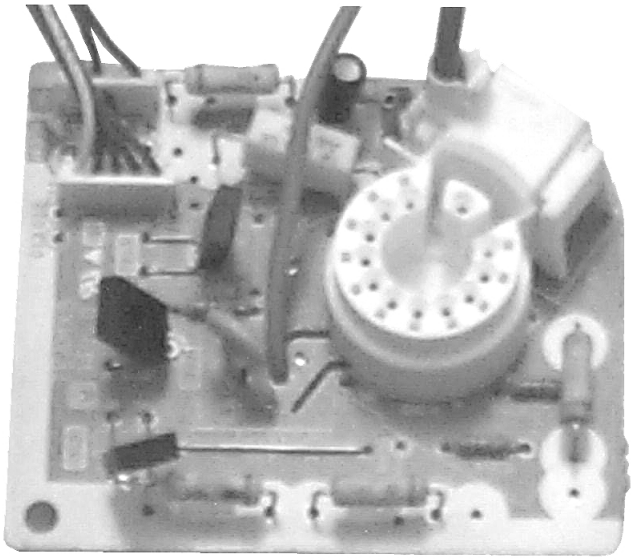


Figure 5. C-Board

Component Identification (cont.)

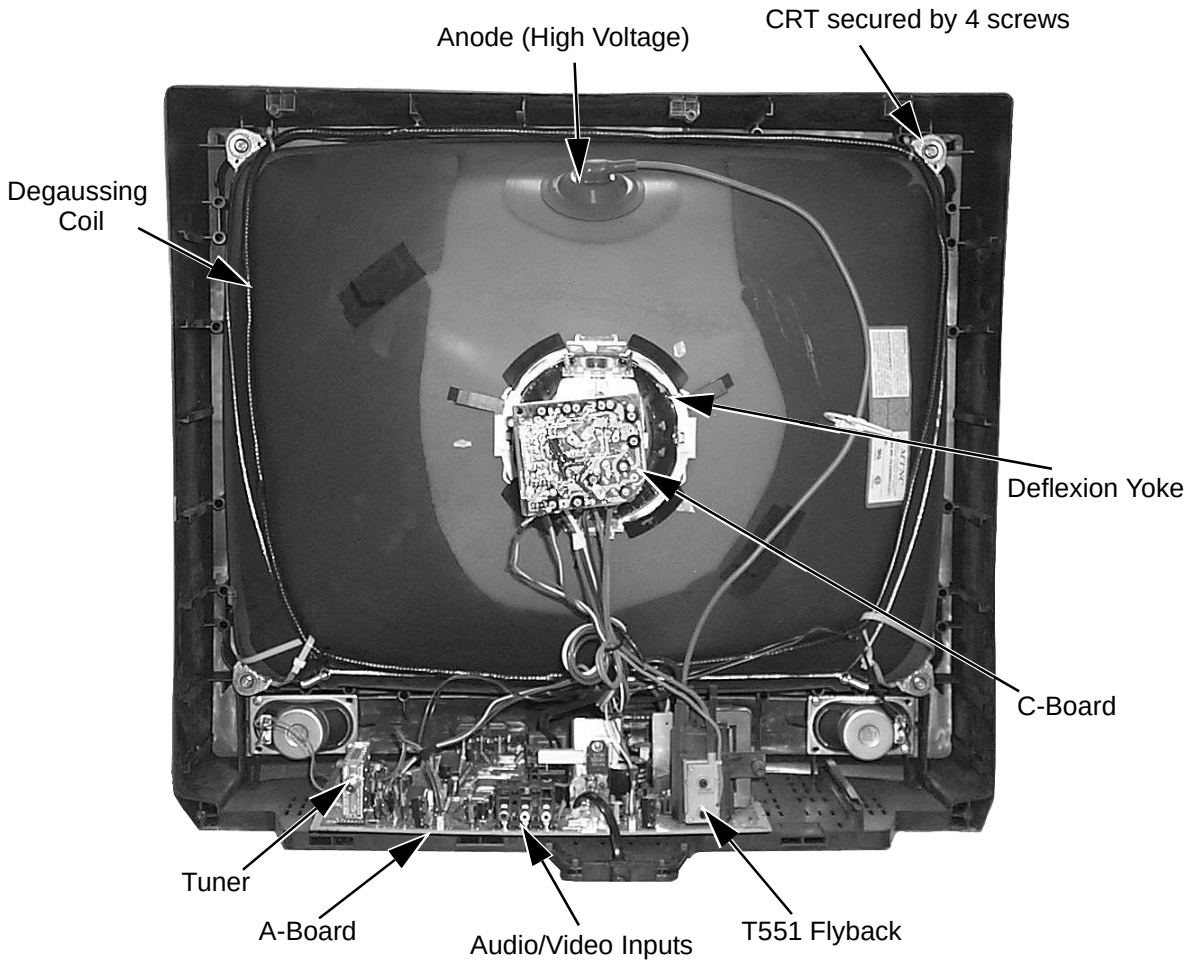


Figure 6. **Television's rear view with cover removed.**

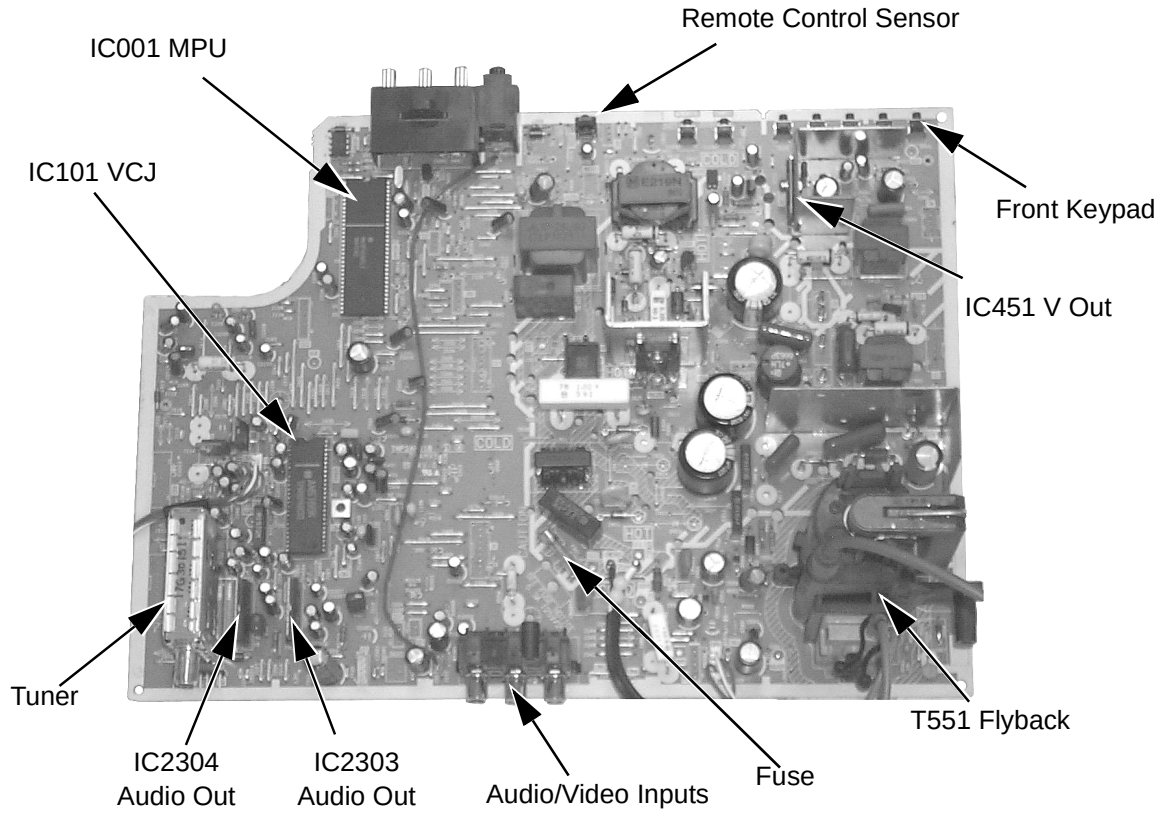


Figure 7. **Main Board .**

REPLACEMENT PARTS LIST

Model: CT-25G5B/UB

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
	CAPRISTORS	
CRA801	**EXNFGV**	**RES-CAP**
CRA802	**EXNFGV**	**RES-CAP**
	CAPACITORS	
C001	ECA1AM101	CAP,E 100UF/10V
C003	ECA1HM4R7	CAP,E 4.7UF/50V
C004	ECJ2VC1H330J	CAP,C 33PF-J-50V
C005	ECJ2VC1H330J	CAP,C 33PF-J-50V
C008	ECJ2VF1H104Z	CAP,C .1UF-Z-50V
C010	ECJ2VF1H103Z	CAP,C .01UF-Z-50V
C011	ECA1CM221	CAP,E 220UF/16V
C013	ECA0JM101	CAP,E 100UF/6.3V
C016	ECJ2VC1H101J	CAP,C 100PF-J-50V
C017	ECJ2VC1H220J	CAP,C 22PF-J-50V
C018	ECJ2VC1H220J	CAP,C 22PF-J-50V
C019	ECA0JM101	CAP,E 100UF/6.3V
C020	ECA0JM101	CAP,E 100UF/6.3V
C022	ECA1CM471	CAP,E 470UF/16V
C024	ECA1HM4R7	CAP,E 4.7UF/50V
C025	ECJ2VC1H101J	CAP,C 100PF-J-50V
C026	ECA1HM010	CAP,E 1.0UF/50V
C031	ECJ2VB1H821K	CAP,C 820PF-K-50V
C032	ECA1AM470	CAP,E 47UF/10V
C033	ECJ2VC1H101J	CAP,C 100PF-J-50V
C035	ECJ2VC1H220J	CAP,C 22PF-J-50V
C036	ECJ2VC1H220J	CAP,C 22PF-J-50V
C037	ECJ2VC1H220J	CAP,C 22PF-J-50V
C038	ECJ2VC1H220J	CAP,C 22PF-J-50V
C101	ECJ2VF1H223Z	CAP,C .022UF-Z050V
C102	ECA1EM100	CAP,E 10UF/25V
C103	ECJ2VC1H300J	CAP,C 30PF-J-50V
C105	ECJ2VC1H221J	CAP,C 220PF-J-50V
C106	ECA1HMR47	CAP,E .47UF/50V
C107	ECJ2VC1H390J	CAP,C 39PF-J-50V
C108	ECA1HMR22	CAP,E .22UF/50V
C109	EEANA1E4R7B	CAP,E 4.7UF-25V
C110	ECJ2VF1H103Z	CAP,C .01UF-Z-50V
C111	ECA1EM100	CAP,E 10UF/25V
C113	ECA1EM100	CAP,E 10UF/25V
C117	ECJ2VC1H120J	CAP,C 12PF-J-50V
C151	ECA1HMR22	CAP,E .22UF/50V
C201	ECJ2VF1H103Z	CAP,C .01UF-Z-50V
C202	ECJ2VC1H101J	CAP,C 100PF-J-50V
C203	ECA1HM4R7	CAP,E 4.7UF/50V
C301	ECJ2VC1H390J	CAP,C 39PF-J-50V
C302	EEANA1E1R0B	CAP,E 1.0UF-25V
C304	ECEA1HNR47U	CAP,E .47UF-50V
C305	ECA1HM4R7	CAP,E 4.7UF/50V
C306	ECA1CM221	CAP,E 220UF/16V
C308	ECQB1H823JM	CAP,P .082UF-J-50V
C309	ECA1AM101	CAP,E 100UF/10V

REF NO.	PART NO.	DESCRIPTION
C310	ECA1HM4R7	CAP,E 4.7UF/50V
C311	ECA1HM4R7	CAP,E 4.7UF/50V
C312	ECA1EM220	CAP,E 22UF/25V
C314	ECJ2VF1H104Z	CAP,C .1UF-Z-50V
C351	ECJ2VB1H391K	CAP,C 390PF-K-50V
C352	ECJ2VB1H391K	CAP,C 390PF-K-50V
C353	ECJ2VB1H471K	CAP,C 470PF-K-50V
C354	ECKD3D102KB	CAP,C .001UF-K-2KV
C357	EEANA1E1R0B	CAP,E 1.0UF-25V
C370	ECA1HM100	CAP,E 10UF/50V
C401	ECQB1H153JM	CAP,P .015UF-J-50V
C402	ECJ2VB1H471K	CAP,C 470PF-K-50V
C403	ECA1HM2R2	CAP,E 2.2UF/50V
C451	ECA1AM470	CAP,E 47UF/10V
C452	ECSF1EE105	CAP,T 1.0UF/25V
C453	EEUFC1H1R0B	CAP,E 1.0UF-50V
C454	ECA1EM102	CAP,E 1000UF/25V
C455	ECA1VHG101B	CAP,E 100UF-35V
C456	ECQB1H103JM	CAP,P .01UF-J-50V
C459	ECA1VM471	CAP,E 470UF/35V
C460	ECQM1104JZ	CAP,P .1UF-J-100V
C462	ECA1EM100	CAP,E 10UF/25V
C502	ECQB1H223JM	CAP,P .022UF-J-50V
C503	ECA1HM2R2	CAP,E 2.2UF/50V
C504	ECJ2VC1H101J	CAP,C 100PF-J-50V
C505	ECJ2VU1H221J	CAP,C 220PF-J-50V
C506	ECA1CM221	CAP,E 220UF/16V
C507	ECJ2VC1H271J	CAP,C 270PF-J-50V
C508	ECJ2VC1H121J	CAP,C 120PF-J-50V
C510	ECCD2H100D	CAP,C 10PF-D-500V
C511	ECKD2H821KB	CAP,C 820PF-K-500V
C512	ECKD2H101KB	CAP,C 100PF-K-500V
C531	**ECA1EM220**	**CAP,E 22UF/25V**
C532	ECA1AM102	CAP,E 1000UF/10V
C533	ECJ2VF1H103Z	CAP,C .01UF-Z-50V
C534	ECJ2VF1H103Z	CAP,C .01UF-Z-50V
C551	**ECA1VM331**	**CAP,E 330UF/35V**
C552	**ECA1EM471**	**CAP,E 470UF/25V**
C553	ECKD2H561KB	CAP,C 560PF-K-500V
C554	ECKD2H561KB	CAP,C 560PF-K-500V
C555	**ECA2EM220**	**CAP,E 22UF-250V**
C556	**ECA1CM471**	**CAP,E 470UF/16V**
C557	ECKD2H102KB	CAP,C .001UF-K-500V
C559	ECA1HM220	CAP,E 22UF/50V
C560	**EEANA1E2R2B**	**CAP,E 2.2UF-25V**
C561	ECKD2H561KB	CAP,C 560PF-K-500V
C563	**ECWH12H822JS**	**CAP,P .0082UF-J-1.2KV**
C564	**ECWH12H332JS**	**CAP,P .0033UF-J-1.2KV**
C565	**ECKD3D471JB**	**CAP,C 470PF-J-2KV**
C566	**ECKD3D181JB**	**CAP,C 180PF-J-2KV**
C568	**ECWF2274JBB**	**CAP,M .27UF-J-200V**

REPLACEMENT PARTS LIST

Model: CT-25G5B/UB

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
C569	**ECWF2564JBB**	**CAP,M .56UF-J-200V**
C571	ECA1EM220	CAP,E 22UF/25V
C572	ECA1EM100	CAP,E 10UF/25V
C573	ECA1CM101	CAP,E 100UF/16V
C601	ECJ2VC1H181J	CAP,C 180PF-J-50V
C602	ECJ2VC1H680J	CAP,C 68PF-J-50V
C604	ECJ2VU1H150J	CAP,C 15PF-J-50V
C605	ECJ2VB1H332K	CAP,C .0033UF-K-50V
C606	ECA1HM010	CAP,E 1.0UF/50V
C801	**ECKDAE472ZED**	**CAP,C .4700PF-Z-250VAC**
C802	**ECKDAE472ZED**	**CAP,C .4700PF-Z-250VAC**
C805	**EC0S2DA221BB**	**CAP,E 220UF/200V**
C806	**EC0S2DA221BB**	**CAP,E 220UF/200V**
C807	ECA1HM4R7	CAP,E 4.7UF/50V
C808	ECA1CM101	CAP,E 100UF/16V
C809	**EC0S2DG151DG**	**CAP,E 151UF/200V**
C810	**ECQU2A153MV**	**CAP,P .015UF-M-250V**
C811	**ECQU2A153MV**	**CAP,P .015UF-M-250V**
C812	**ECQU2A224MV**	**CAP,P .22UF-M-250VAC**
C814	ECQB1H333JM	CAP,P .033UF-J-50V
C815	ECA1EHG101B	CAP,E 100UF-25V
C818	ECKD3A821KB	CAP,C 820PF-K-1KVDC
C820	**ECA1JHG100B**	**CAP,E 10UF-63V**
C823	**ECA160V33UE**	**CAP,E 33UF/160V**
C824	ECKD3A331KB	CAP,C 330PF-K-1KV
C825	ECKD3A471KB	CAP,C 470PF-K-1KV
C2201	ECA1HM4R7	CAP,E 4.7UF/50V
C2202	ECA1HM2R2	CAP,E 2.2UF/50V
C2203	ECA1HM4R7	CAP,E 4.7UF/50V
C2204	AP106K016CAE	CAP,T 10UF/16V
C2205	ECA1HMR33	CAP,E .33UF/50V
C2206	ECQB1H223JM	CAP,P .022UF-J-50V
C2207	AP335K016CAE	CAP,T 3.3UF/16V
C2208	ECJ2VB1C104K	CAP,C .1UF-I-16V
C2209	ECJ2VB1C104K	CAP,C .1UF-I-16V
C2210	ECJ2VB1C104K	CAP,C .1UF-I-16V
C2212	ECQB1H473JM	CAP,P .047UF-J-50V
C2215	ECA0JM101	CAP,E 100UF/6.3V
C2218	ECA1HMR47	CAP,E .47UF/50V
C2220	EEANA1E100B	CAP,E 10UF-25V
C2302	ECA1HM3R3	CAP,E 3.3UF/50V
C2303	ECA1CM100	CAP,E 10UF/16V
C2304	ECQB1H104JM	CAP,P .1UF-J-50V
C2306	ECA1CM471	CAP,E 470UF/16V
C2307	EEANA1E1R0B	CAP,E 1.0UF-25V
C2309	ECA1HM010	CAP,E 1.0UF/50V
C2310	ECJ2VB1H222K	CAP,C .0022UF-K-50V
C2311	ECA1HM4R7	CAP,E 4.7UF/50V
C2351	ECA1EM102	CAP,E 1000UF/25V
C2352	ECA1HM3R3	CAP,E 3.3UF/50V
C2353	ECA1CM100	CAP,E 10UF/16V
C2354	ECQB1H104JM	CAP,P .1UF-J-50V

REF NO.	PART NO.	DESCRIPTION
C2356	ECA1CM471	CAP,E 470UF/16V
C2357	EEANA1E1R0B	CAP,E 1.0UF-25V
C2358	ECJ2VB1H222K	CAP,C .0022UF-K-50V
C3001	ECA1HM010	CAP,E 1.0UF/50V
C3002	ECA1HM010	CAP,E 1.0UF/50V
C3003	ECA1HM010	CAP,E 1.0UF/50V
C3005	ECJ2VB1H122K	CAP,C .0012UF--J-50V
C3006	ECJ2VB1H122K	CAP,C .0012UF--J-50V
		DIODES
D001	ERA15-01	DIODE
D002	MA165	DIODE
D003	MA4047H	DIODE
D006	MA4330H	DIODE
D008	MA165	DIODE
D009	MA165	DIODE
D011	MA165	DIODE
D014	MA165	DIODE
D015	MA165	DIODE
D016	MA165	DIODE
D017	MA165	DIODE
D052	MA4068M	DIODE, ZENER
D451	ERA15-01	DIODE
D452	MA4047M	DIODE, ZENER
D453	MA165	DIODE
D461	MA27WTA	DIODE
D501	MA4082L	DIODE
D531	**AS01**	**DIODE**
D532	**MA4062L**	**DIODE**
D551	**TVSRU2N**	**DIODE**
D553	**AU02**	**DIODE**
D554	**AU02**	**DIODE**
D555	MA165	DIODE
D556	MA4360H	DIODE, ZENER
D558	**RS3FS**	**DIODE**
D559	**BYD33G-113**	**DIODE**
D560	MA165	DIODE
D561	**AU02**	**DIODE**
D801	**GP15KL-042**	**DIODE**
D802	**GP15KL-042**	**DIODE**
D805	**TRPW5B0M050D**	**THERMISTOR**
D806	MA4056M	DIODE
D807	MA165	DIODE
D820	EU02V1	DIODE
D821	EU02V1	DIODE
D822	EU02V1	DIODE
D823	RL30A	DIODE
D824	EU02V1	DIODE
D825	**TVSSR2KL**	**DIODE, PROTECTION**
D826	EU02V1	DIODE
D829	MA165	DIODE
D2302	MA165	DIODE
D2312	MA4068M	DIODE, ZENER

REPLACEMENT PARTS LIST

Model: CT-25G5B/UB

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
D3001	MA165	DIODE
D3002	MA4110M	DIODE, ZENER
D3004	MA4110M	DIODE, ZENER
D3005	MA4110M	DIODE, ZENER
D3010	MA4110M	DIODE, ZENER
D3011	MA4110M	DIODE, ZENER
D3016	MA3056M	DIODE
	FUSES	
F801	**XBA2A00101**	**FUSE 6.3A 125V**
	INTEGRATED CIRCUITS	
IC001	**MN1874088TL3**	**INT CKT**
IC002	M24C04-WBN6	INT CKT
IC003	PIC-26042SR	INT CKT
IC101	**AN5166K**	**INT CKT**
IC451	**LA7838**	**INT CKT**
IC551	AN78M09	PLUS 9V AVR
IC552	**AN78M05**	**PLUS 5V AVR**
IC801	**PC817X2**	**INT CKT**
IC803	**STR58041A**	**INT CKT**
IC2201	AN5829S-E1V	INT CKT
IC2303	LA4285	INT CKT
IC2304	LA4285	INT CKT
	COILS	
L001	TLTABT2R2K	COIL, PEAKING 2.2UH
L002	ELESN390KA	COIL, PEAKING 39UH
L003	TLTABT2R2K	COIL, PEAKING 2.2UH
L004	TLTABT2R2K	COIL, PEAKING 2.2UH
L006	EXCELSA24T	FERRITE BEAD
L008	TLTABT470K	COIL, PEAKING 47UH
L009	EXCELSA35	FERRITE BEAD
L012	EXCELSA24T	FERRITE BEAD
L013	EXCELSA35	FERRITE BEAD
L014	ELESN471JA	COIL, PEAKING 470UH
L103	ELESN150JA	COIL, PEAKING 15UH
L104	TLTABT1R0K	COIL, PEAKING 1.0UH
L105	EIV7EN053B	COIL, VCO
L106	ELESN180JA	COIL, PEAKING 18UH
L351	TLTABT101K	COIL, PEAKING
L551	**TLH6663P**	**COIL, LINEARITY**
L602	ELESN120JA	COIL, PEAKING 12UH
L801	**ELF17N017A**	**LINE FILTER**
L802	ELEIE680KA	COIL, PEAKING 68UH
L804	EXCELSA39	FERRITE BEAD
L2302	TLTABT4R7K	COIL, PEAKING 4.7UH
	TRANSISTORS	
Q001	2SD601ARTX	TRANSISTOR
Q002	2SC1685QRS	TRANSISTOR
Q003	2SB709ARTX	TRANSISTOR
Q004	2SB709ARTX	TRANSISTOR
Q302	2SD601ARTX	TRANSISTOR
Q304	2SD601ARTX	TRANSISTOR

REF NO.	PART NO.	DESCRIPTION
Q351	2SC3063	TRANSISTOR
Q352	2SC3063	TRANSISTOR
Q353	2SC3063	TRANSISTOR
Q430	2SD601ARTX	TRANSISTOR
Q451	2SD601ARTX	TRANSISTOR
Q452	2SD601ARTX	TRANSISTOR
Q501	2SC4212H	TRANSISTOR
Q551	**2SD2539MA1**	**TRANSISTOR**
Q801	2SC1685RSTA	TRANSISTOR
Q802	2SC1384RS	TRANSISTOR
Q804	2SA1767Q	TRANSISTOR
Q2309	2SB709ARTX	TRANSISTOR
Q3001	2SD601ARTX	TRANSISTOR
	RELAYS	
RL801	**TSEH0005**	**RELAY**
	RESISTORS	
R002	ERJ6GEYJ182	RES,M 1.8K-J-1/10
R003	ERJ6GEYJ562	RES,M 5.6K-J-1/10
R004	ERDS1TJ181	RES,C 180-J-1/2
R005	ERJ6GEYJ101	RES,M 100-J-1/10
R006	ERJ6GEYJ102	RES,M 1K-J-1/10
R007	ERJ6GEYJ102	RES,M 1K-J-1/10
R008	ERJ6GEYJ562	RES,M 5.6K-J-1/10
R010	ERJ6GEYJ154	RES,M 150K-J-1/10
R011	ERJ6GEYJ684	RES,M 680K-J-1/10
R012	ERJ6GEYJ473	RES,M 47K-J-1/10
R014	ERJ6GEYJ472	RES,M 4.7K-J-1/10
R015	ERJ6GEYJ472	RES,M 4.7K-J-1/10
R016	ERJ6GEYJ472	RES,M 4.7K-J-1/10
R017	ERJ6GEYJ472	RES,M 4.7K-J-1/10
R020	ERJ6GEYJ564	RES,M 560K-J-1/10
R021	ERJ6GEYJ101	RES,M 100-J-1/10
R022	ERJ6GEYJ101	RES,M 100-J-1/10
R023	ERJ6GEYJ102	RES,M 1K-J-1/10
R025	ERJ6GEYJ223	RES,M 22K-J-1/10
R027	ERJ6GEYJ103	RES,M 10K-J-1/10
R028	**ERJ6GEYJ103**	**RES,M 10K-J-1/10**
R030	ERJ6GEYJ102	RES,M 1K-J-1/10
R032	ERJ6ENF1002	RES,M 10K-F-1/10
R033	ERJ6GEYJ222	RES,M 2.2K-J-1/10
R034	ERJ6GEYJ222	RES,M 2.2K-J-1/10
R035	ERJ6GEYJ332	RES,M 3.3K-J-1/10
R036	ERJ6GEYJ562	RES,M 5.6K-J-1/10
R037	ERJ6GEYJ103	RES,M 10K-J-1/10
R038	ERJ6GEYJ223	RES,M 22K-J-1/10
R039	ERJ6GEYJ102	RES,M 1K-J-1/10
R046	ERJ6GEYJ102	RES,M 1K-J-1/10
R048	ERJ6GEYJ221	RES,M 220-J-1/10
R049	ERJ6GEYJ221	RES,M 220-J-1/10
R053	ERJ6GEYJ103	RES,M 10K-J-1/10
R055	ERJ6GEYJ103	RES,M 10K-J-1/10

REPLACEMENT PARTS LIST

Model: CT-25G5B/UB

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
R060	ERJ6GEYJ102	RES,M 1K-J-1/10
R065	ERJ6GEYJ471	RES,M 470-J-1/10
R066	ERJ6GEYJ222	RES,M 2.2K-J-1/10
R067	ERJ6GEYJ222	RES,M 2.2K-J-1/10
R068	ERJ6GEYJ222	RES,M 2.2K-J-1/10
R070	ERJ6GEYJ101	RES,M 100-J-1/10
R101	ERJ6GEYJ750	RES,M 75-J-1/10
R102	ERJ6GEYJ683	RES,M 68K-J-1/10
R103	ERJ6GEYJ183	RES,M 18K-J-1/10
R104	ERJ6GEYJ561	RES,M 560-J-1/10
R105	ERJ6GEYJ561	RES,M 560-J-1/10
R107	ERJ6GEYJ222	RES,M 2.2K-J-1/10
R108	ERJ6GEYJ471	RES,M 470-J-1/10
R152	ERJ6GEYJ183	RES,M 18K-J-1/10
R153	ERJ6GEYJ223	RES,M 22K-J-1/10
R154	ERJ6GEYJ393	RES,M 39K-J-1/10
R201	ERJ6GEYJ471	RES,M 470-J-1/10
R202	ERJ6GEYJ682	RES,M 6.8K-J-1/10
R203	ERJ6GEYJ222	RES,M 2.2K-J-1/10
R303	ERJ6GEYJ682	RES,M 6.8K-J-1/10
R304	ERJ6GEYJ332	RES,M 3.3K-J-1/10
R305	ERJ6ENF3001	RES,M 3K-F-1/10
R306	ERJ6ENF1801	RES,M 1.8K-F-1/10W
R307	ERJ6GEYJ564	RES,M 560K-J-1/10
R308	ERJ6GEYJ102	RES,M 1K-J-1/10
R309	ERJ6GEYJ683	RES,M 68K-J-1/10
R310	ERJ6GEYJ273	RES,M 27K-J-1/10
R311	ERJ6GEYJ185	RES,M 1.8MEG-J-1/10W
R317	ERJ6GEYJ684	RES,M 680K-J-1/10
R319	ERJ6GEYJ122	RES,M 1.2K-J-1/10
R320	ERJ6GEYJ102	RES,M 1K-J-1/10
R351	ERG2FJ123H	RES,M 12K-J-2W
R352	ERG2FJ123H	RES,M 12K-J-2W
R353	ERG2FJ123H	RES,M 12K-J-2W
R354	ERDS1TJ272	RES,C 2.7K-J-1/2
R355	ERDS1TJ272	RES,C 2.7K-J-1/2
R356	ERDS1TJ272	RES,C 2.7K-J-1/2
R357	ERJ6GEYJ301	RES,M 300-J-1/10
R358	ERJ6GEYJ301	RES,M 300-J-1/10
R359	ERJ6GEYJ301	RES,M 300-J-1/10
R360	ERJ6GEYJ102	RES,M 1K-J-1/10
R361	ERJ6GEYJ102	RES,M 1K-J-1/10
R362	ERJ6GEYJ102	RES,M 1K-J-1/10
R363	ERJ6GEYJ101	RES,M 100-J-1/10
R364	ERJ6GEYJ101	RES,M 100-J-1/10
R365	ERJ6GEYJ101	RES,M 100-J-1/10
R370	ERDS2TJ224	RES,C 220K-J-1/4
R371	ERDS2TJ393	RES,C 39K-J-1/4
R401	ERJ6GEYJ102	RES,M 1K-J-1/10
R430	ERJ6GEYJ103	RES,M 10K-J-1/10
R432	ERJ6GEYJ102	RES,M 1K-J-1/10
R451	ERDS1FJ1R0	RES,C 1.0-J-1/2
R453	ERJ6GEYJ224	RES,M 220K-J-1/10
R454	ERJ6GEYJ473	RES,M 47K-J-1/10
R455	ERJ6GEYJ153	RES,M 15K-J-1/10
R456	ERJ6GEYJ243	RES,M 24K-J-1/10
R457	ERJ6GEYJ122	RES,M 1.2K-J-1/10
R458	ERJ6GEYJ273	RES,M 27K-J-1/10
R459	ERJ6GEYJ683	RES,M 68K-J-1/10
R460	ERDS2TJ102	RES,C 1K-J-1/4
R462	ERJ6GEYJ473	RES,M 47K-J-1/10
R463	ERJ6GEYJ473	RES,M 47K-J-1/10
R464	ERDS1FJ1R5	RES,C 1.5-J-1/2
R465	ERJ6GEYJ103	RES,M 10K-J-1/10
R466	ERJ6GEYJ103	RES,M 10K-J-1/10
R467	ERJ6GEYJ104	RES,M 100K-J-1/10
R468	ERJ6GEYJ101	RES,M 100-J-1/10
R469	ERJ6GEYJ220	RES,M 22-J-1/10
R471	ERJ6GEYJ223	RES,M 22K-J-1/10
R501	ERJ6GEYJ102	RES,M 1K-J-1/10
R502	ERJ6GEYJ562	RES,M 5.6K-J-1/10
R503	ERJ6GEYJ822	RES,M 8.2K-J-1/10
R504	ERJ6GEYJ561	RES,M 560-J-1/10
R505	ERJ6GEYJ682	RES,M 6.8K-J-1/10
R506	ERJ6GEYJ182	RES,M 1.8K-J-1/10
R507	ERJ6GEYJ392	RES,M 3.9K-J-1/10
R508	ERJ6GEYJ562	RES,M 5.6K-J-1/10
R509	ERDS2TJ331	RES,C 330-J-1/4
R510	**ERG3FJ362H**	**RES,M 3.6K-J-3W**
R511	**ERG3FJ362H**	**RES,M 3.6K-J-3W**
R512	ERG2FJ392H	RES,M 3.9K-J-2W
R531	**ERD25FJ470**	**RES,C 47-J-1/4W**
R532	**ERJ6ENF5602**	**RES,M 56K-F-1/10W**
R533	**ERJ6ENF2152**	**RES,M 21.5K-F-1/10W**
R536	ERJ6GEYJ223	RES,M 22K-J-1/10
R537	ERJ6GEYJ473	RES,M 47K-J-1/10
R551	**ERDS1FJ1R0**	**RES,C 1.0-J-1/2**
R552	**ERDS1FJ1R0**	**RES,C 1.0-J-1/2**
R553	**ERDS1FJ1R0**	**RES,C 1.0-J-1/2**
R556	ERJ6GEYJ272	RES,M 2.7K-J-1/10
R557	ERJ6GEYJ103	RES,M 10K-J-1/10
R558	**ERQ1CKPR33**	**RES,F .33-K-1W**
R559	ERG2FJ683H	RES,M 12K-J-2W
R560	ERG2FJ122H	RES,M 12K-J-2W
R561	ERG2FJ102H	RES,M 1K-J-2W
R562	ERG3FJ680H	RES,M 68-J-3W
R563	ERDS2TJ393	RES,C 39K-J-1/4
R564	ERDS2TJ104	RES,C 100K-J-1/4
R565	ERJ6GEYJ103	RES,M 10K-J-1/10
R567	ERG2FJ471H	RES,M 470-J-2W
R602	ERJ6GEYJ331	RES,M 330-J-1/10
R603	ERJ6GEYJ331	RES,M 330-J-1/10
R604	ERJ6GEYJ331	RES,M 330-J-1/10
R611	ERJ6GEYJ333	RES,M 33K-J-1/10

REPLACEMENT PARTS LIST

Model: CT-25G5B/UB

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
R612	ERJ6GEYJ333	RES,M 33K-J-1/10
R613	ERJ6GEYJ333	RES,M 33K-J-1/10
R614	ERJ6GEYJ332	RES,M 3.3K-J-1/10
R801	**ERF7ZK1R5**	**RES,W 1.5-K-7W**
R805	ERDS2TJ274	RES,C 270K-J-1/4
R806	ERDS2TJ274	RES,C 270K-J-1/4
R808	ERDS1FJ1R0	RES,C 1.0-J-1/2
R809	ERDS1FJ1R0	RES,C 1.0-J-1/2
R810	ERDS1FJ272	RES,C 2.7K-J-1/2
R812	ERDS1TJ183	RES,C 18K-J-1/2
R813	ERJ6GEYJ562	RES,M 5.6K-J-1/10
R815	ERC12ZGM825	RES,S 8.2MEG-M-1/2
R820	ERJ6GEYJ153	RES,M 15K-J-1/10
R821	ERJ6GEYJ392	RES,M 3.9K-J-1/10
R822	ERD50FJ474	RES,C 470K-J-1/2W
R823	ERDS2TJ222	RES,C 2.2K-J-1/4
R824	ERG3FJ390	RES,M 39-J-3W
R825	ERJ6GEYJ102	RES,M 1K-J-1/10
R826	**ERF2AKR22**	**RES,W .22-K-2W**
R806	ERDS2TJ274	RES,C 270K-J-1/4
R827	ERDS1FJ561	RES,C 560-J-1/2
R828	ERG3FJ470H	RES,M 47-J-3W
R829	ERQ14AJ180	RES,F 180-J-1/4
R2201	ERJ6GEYJ224	RES,M 220K-J-1/10
R2206	ERJ6GEYJ102	RES,M 1K-J-1/10
R2207	ERJ6GEYJ102	RES,M 1K-J-1/10
R2220	ERJ6GEYJ101	RES,M 100-J-1/10
R2301	ERQ2CJP120	RES,F 12-J-2W
R2303	ERD25FJ1R0	RES,C 1.0-J-1/4
R2306	ERJ6GEYJ682	RES,M 6.8K-J-1/10
R2311	ERJ6GEYJ122	RES,M 1.2K-J-1/10
R2312	ERJ6GEYJ392	RES,M 3.9K-J-1/10
R2313	ERJ6GEYJ683	RES,M 68K-J-1/10
R2314	ERJ6GEYJ104	RES,M 100K-J-1/10
R2317	ERJ6GEYJ681	RES,M 680-J-1/10
R2318	ERJ6GEYJ103	RES,M 10K-J-1/10
R2319	ERDS2TJ562	RES,C 5.6K-J-1/4
R2321	ERJ6GEYJ101	RES,M 100-J-1/10
R2322	ERJ6GEYJ472	RES,M 4.7K-J-1/10
R2353	ERD25FJ1R0	RES,C 1.0-J-1/4
R2356	ERJ6GEYJ682	RES,M 6.8K-J-1/10
R3001	ERJ6GEYJ473	RES,M 47K-J-1/10
R3002	ERJ6GEYJ104	RES,M 100K-J-1/10
R3005	ERJ6GEYJ750	RES,M 75-J-1/10
R3006	ERJ6GEYJ391	RES,M 390-J-1/10
R3009	ERJ6GEYJ682	RES,M 6.8K-J-1/10
R3010	ERJ6GEYJ334	RES,M 330K-J-1/10
R3011	ERJ6GEYJ682	RES,M 6.8K-J-1/10
R3012	ERJ6GEYJ334	RES,M 330K-J-1/10
R3013	ERJ6GEYJ682	RES,M 6.8K-J-1/10
R3014	ERJ6GEYJ682	RES,M 6.8K-J-1/10
R3015	ERDS2TJ181	RES,C 180-J-1/4
R3016	ERDS2TJ181	RES,C 180-J-1/4
	SWITCHES	
S001	EVQPF106K	SWITCH
S002	EVQPF106K	SWITCH
S003	EVQPF106K	SWITCH
S004	EVQPF106K	SWITCH
S005	EVQPF106K	SWITCH
S008	EVQPF106K	SWITCH
S009	EVQPF106K	SWITCH
	TRANSFORMERS	
T001	TLP16297	TRANSFORMER, POWER SUPPLY
T501	TLH15452	TRANSFORMER, HORIZONTAL D
T502	ETE19Z30AY	TRANSFORMER, HORIZONTAL C
T551	KFT4AB143F	TRANSFORMER, FLYBACK
T801	ETS28AE219NC	TRANSFORMER
	CRYSTALS/FILTERS	
X001	TSSA010	
X101	M1972M	FILTER
X102	EFCS4R5MW5BA	FILTER, BANDPASS
X201	SFSH4R5MDB	CRYSTAL
X501	TAFCSB503F38	CRYSTAL, CLOCK
X601	TSS2AA001	CRYSTAL, 3.58MHZ
	OTHERS	
M001	**A63QDB891X**	**CRT 25"**
M002	ETC33X82NA	YOKE, CONVERGENCE
TNR001	**ENV56D51G3**	**TUNER**
M003	EUR501450	REMOTE CONTROL
M004	UR50EC1190A	BATTERY COVER, REMOTE CON
M005	TAS2AA0012	SPEAKER 16-OHM 1.5W
M006	TBM2A10141	BADGE, PANASONIC
M007	TJSC00300	CRT SOCKET
M008	TKX2AA00403	GUIDE, IR
DY	**TLY2AA013**	**DEFLECTION YOKE**
M009	TMM2A30702	WEDGE, YOKE
M010	TQB2AA0326-1	MANUAL, OWNERS
M011	TQB2AA7057	REMOTE GUIDE
M012	TQB2AA7075	V-CHIP CANADIAN
M013	**TSX2AA0111**	**AC LINE CORD**
M014	TXFBX012BSER	ASSY, 7-KEY BUTTON
M015	TXFKU45BSER	ASSY, CABINET BACK
M016	TXFKY23BSER	ASSY, CABINET FRONT
M017	TXF3A0190DA	ASSY., DAG GND
M018	0FMK014ZZ	CONVERGENCE CORRECTOR STRIP
DEG	**0LK19003-1A**	**COIL, DEGAUSSING 25"**
JK3001	TJB2A9064B	ASSY. JACK A/V
JK3002	TJB2AA0046	TERMINAL, FRONT A/V

SERVICEMAN MODE (ELECTRONIC CONTROL)
SERVICE ADJUSTMENT VALUES

Model _____ Ser #_____ Date_____

Note: Record the original settings PRIOR to modifying the registers.

Mode	Service Adjustment	Adjustment Range	Def. Val.	Original Value	New Value
Sub Adjustments					
B0	SUB-COLOR	0 ~ 63	35		
B1	SUB-TINT	0 ~ 63	48		
B2	SUB-BRIGHTNESS	0 ~ 255	72		
B3	SUB-PICTURE	0 ~ 63	25		
B4	KILLER/ABL/ GAMMA	0 ~ 7	5		
B5	VIDEO ADJUSTMENT	0 ~ 15	8		
B6	AUDIO ADJUSTMENT	0 ~ 31	18		
B7	V-SIZE	0 ~ 63	21		
Cut-Off Adjustments					
C0	CUT-OFF R	0 ~ 1 0 ~ 255	0 141		
C1	CUT-OFF G	0 ~ 255	64		
C2	CUT-OFF B	0 ~ 1 0 ~ 255	0 136		
C3	DRIVE R	0 ~ 127	80		
C4	DRIVE B	0 ~ 127	84		
C5	YNR SWITCH	0 ~ 1	0		
C6	AFT	0 ~ 1 0 ~ 255	1 112		
C7	RF-AGC	0 ~ 127	64		
C8	YNR VIDEO ADJUSTMENT	0 ~ 7	0		
C9	HORIZONTAL CENTER	0 ~ 31	10		
Ca	BEAM LIMIT	0 ~ 7	4		
Cb	VCJ TEST H	0 ~ 2	0		
MTS Adjustments					
M0	INPUT LEVEL	0 ~ 63	31		
M1	HIGH-LEVEL SEPARATION	0 ~ 63	29		
M2	LOW-LEVEL SEPARATION	0 ~ 15	8		

Mode	Service Adjustment	Adjustment Range	Def. Val.	Original Value	New Value
Options Adjustments					
S0	PIP COLOR	0 ~ 127	100		
S1	PIP CONTRAST	0 ~ 127	52		
S2	UP 1/9	0 ~ 255	26		
S3	DOWN 1/9	0 ~ 255	146		
S4	LEFT 1/9	0 ~ 255	9		
S5	RIGHT 1/9	0 ~ 255	103		
S6	UP 1/16	0 ~ 255	26		
S7	DOWN 1/16	0 ~ 255	163		
S8	LEFT 1/16	0 ~ 255	9		
S9	RIGHT 1/16	0 ~ 255	118		
Sa	FREERUN	N/A	N/A		
Sb	CLOCK ADJUSTMENT	0 ~ 255	65		
Sc	PIP TINT	0 ~ 63	58		
Sd	LOUDNESS COMPENSATION	0 ~ 63	52		
Comb Filter Adjustments					
X0	COMB GAIN	0 ~ 255	152		
X1	COMB SWITCH	0 ~ 63	12		
X2	COMB LIMIT	0 ~ 63	24		
X3	COMB CORE	0 ~ 127	41		
X4	COMB RF DELAY	0 ~ 127	20		
X5	COMB VIDEO DELAY	0 ~ 127	18		
X6	COMB VMLM	0 ~ 127	90		
X7	COMB VM SW	0 ~ 63	24		
X8	COMB SHARP	0 ~ 255	30		
X9	COMB VM LEVEL	0 ~ 255	255		
Xa	COMB VMPKF	0 ~ 1	1		
Xb	COMB ADJ SHARP	0 ~ 63	15		

Note: *Some adjustments modes may not be available in some models depending on available options.*

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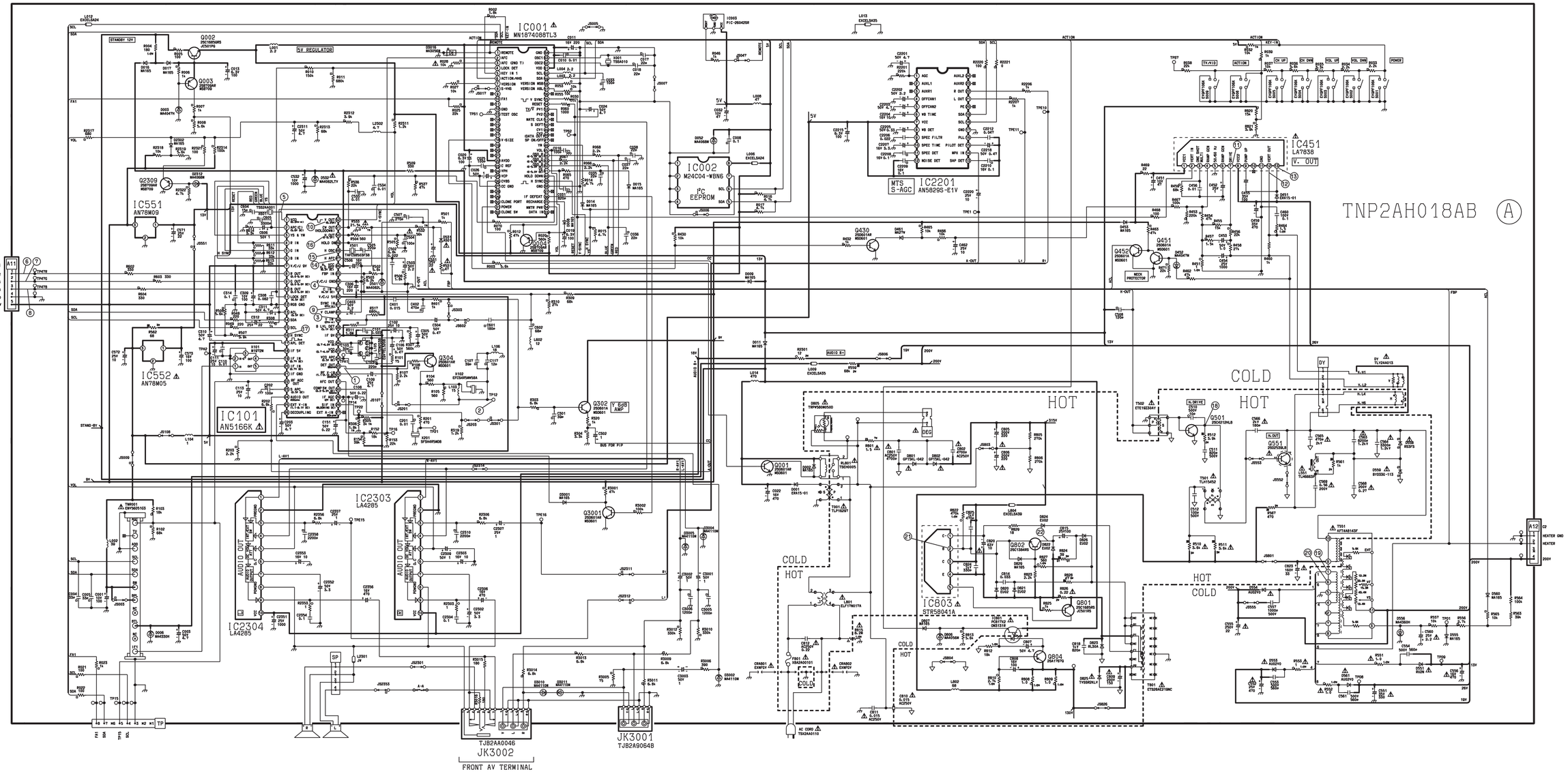
A-Board Schematic - CT-25G5B/UB



A-Board Voltage Measurements (ICs and Transistors)

IC001

1	4.55	33	0.00
2	2.55	34	5.13
3	0.00	35	5.26
4	3.41	36	0.00
5	5.26	37	n.c
6	2.79	38	GND
7	2.27	39	0.15
8	GND	40	4.42
9	n.c	41	0.00
10	5.22	42	0.00
11	n.c	43	0.00
12	GND	44	0.00
13	2.63	45	0.22
14	n.c	46	0.00
15	n.c	47	n.c
16	n.c	48	0.48
17	n.c	49	0.00
18	0.60	50	n.c
19	n.c	51	0.00
20	n.c	52	n.c
21	n.c	53	0.00
22	5.26	54	**
23	0.00	55	4.14
24	n.c	56	n.c
25	1.29	57	0.00
26	1.80	58	0.00
27	GND	59	4.25
28	n.c	60	4.26
29	n.c	61	5.26
30	0.00	62	**
31	5.21	63	2.24
32	0.00	64	GND

IC002

1	GND
2	GND
3	GND
4	GND
5	4.25
6	4.28
7	GND
8	5.27

IC451

1	8.26
2	4.14
3	4.14
4	4.18
5	GND
6	4.21
7	3.96
8	26.79
9	2.87
10	n.c
11	GND
12	15.48
13	27.68

IC551

1	13.66
2	GND
3	9.05

IC552

1	13.66
2	GND
3	4.99

IC803 ⏚

1	87.80
2	129.80
3	257.90
4	130.10
5	130.00

IC101

1	2.81	27	n.c
2	5.67	28	3.42
3	0.00	29	2.82
4	0.00	30	2.82
5	0.00	31	4.82
6	0.00	32	2.16
7	5.05	33	3.12
8	3.56	34	2.59
9	3.44	35	3.45
10	3.43	36	3.45
11	4.23	37	9.05
12	GND	38	4.01
13	3.66	39	4.35
14	4.26	40	2.82
15	4.29	41	4.39
16	0.27	42	4.97
17	3.44	43	2.59
18	4.97	44	GND
19	2.75	45	0.37
20	2.75	46	6.08
21	GND	47	4.04
22	1.56	48	2.07
23	5.00	49	5.31
24	4.00	50	0.86
25	1.78	51	6.51
26	5.68	52	4.13

IC2201

1	1.26
2	n.c
3	n.c
4	2.28
5	2.18
6	0.25
7	4.99
8	2.31
9	2.45
10	0.40
11	2.24
12	3.28
13	3.43
14	2.18
15	3.45
16	3.51
17	GND
18	4.28
19	4.26
20	n.c
21	2.26
22	2.21
23	n.c
24	n.c

IC2303

1	6.30
2	GND
3	6.31
4	0.00
5	0.77
6	8.83
7	8.90
8	GND
9	8.98
10	19.02

IC2304

1	6.30
2	GND
3	6.30
4	0.00
5	0.77
6	8.82
7	8.88
8	GND
9	8.95
10	19.06

	Q001	Q002	Q003	Q004	Q302
B	0.74	5.94	5.05	5.26	2.80
C	0.00	10.92	5.89	GND	9.05
E	GND	5.29	5.94	5.25	2.19

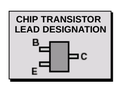
	Q304	Q430	Q451	Q452	Q501 ⏚
B	3.12	0.38	0.63	0.00	0.00
C	9.05	2.69	0.00	3.66	90.10
E	2.49	GND	GND	GND	GND

	Q551 ⏚	Q801 ⏚	Q802 ⏚	Q804 ⏚	Q2309
B	0.00	129.00	129.80	129.90	6.87
C	-31.00	130.20	129.90	0.65	GND
E	GND	129.60	129.90	130.30	0.77

	Q3001
B	0.00
C	9.01
E	GND

Note:
Obtained voltages with a digital multimeter.

CHIP TRANSISTOR LEAD DESIGNATION



** Probing pin may cause television shut down or blanking the CRT.

Boards Designation

- A-Board - Main Board
- C-Board - CRT Board

Voltage Measurements

1. Voltage measurement:
   - AC input to the Receiver is 120V. NTSC (HD, 1125i & 525P when applicable) signal generator is connected to the antenna of the Receiver. (Color bar pattern of 100 IRE white and 7.5 IRE black.)
   - All Picture and Audio adjustments are set to Normalize.
     TV ANT/CABLE - (Set-Up Menu) in TV/ANT Mode
     Volume - Min.
     TV/Video SW - TV position
     Audio Mode - Stereo
   - Voltage readings are nominal and may vary ±10% on active devices. Some voltage reading will vary with signal strength and picture content.
   - Supply voltages are nominal.
2. Ground symbol ⏚ indicates ground lead connection of meter. Incorrect ground connection will result in erroneous readings.

*CAUTION: **Incorrect ground connection of the test equipment will result in erroneous readings.***

Waveform Measurements

1. ③ indicates waveform measurement. (Measurement can be taken at the best accessible location in common to the indicated point.)
2. Taken with an NTSC signal generator connected to the antenna terminal. (NTSC color bar pattern of 8 bars of EIA colors, 100 IRE white and 7.5 IRE black.)
3. Customer Controls (Picture/Audio Menu) are set to Normalize. Volume is set to "MIN".
4. All video and color waveforms are taken with a wideband scope and a probe with low capacitance (10 to 1). Shape and peak altitudes may vary depending on the type of Oscilloscope used and its settings.
5. Ground symbol ⏚ shown on waveform number indicates (Hot) ground lead connection of the Oscilloscope.

CAUTION: Incorrect ground connection of the test equipment will result in erroneous readings.

Schematic Notes

1. Resistors are carbon 1/4W unless noted otherwise.
2. Capacitors are ceramic 50V unless noted otherwise.
3. Coil value notes is inductance in µH.
4. Test point indicated by ; Test point but no pin .
5. Components indicated with ⚠ are critical parts and replacement should be made with manufacture specified replacement parts only.
6. ▬ (**BOLD LINE**) indicates the route of B+ supply.
7. The schematic diagrams are current at the time of printing and are subject to change without notice.
8. Ground symbol ⏚ indicates **HOT GROUND CONNECTION**; ⏚ indicates COLD GROUND.

NOTE: All other component symbols are used for engineering design purposes.

IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

MTNC000664A1

Sheet 1of 1
Side A

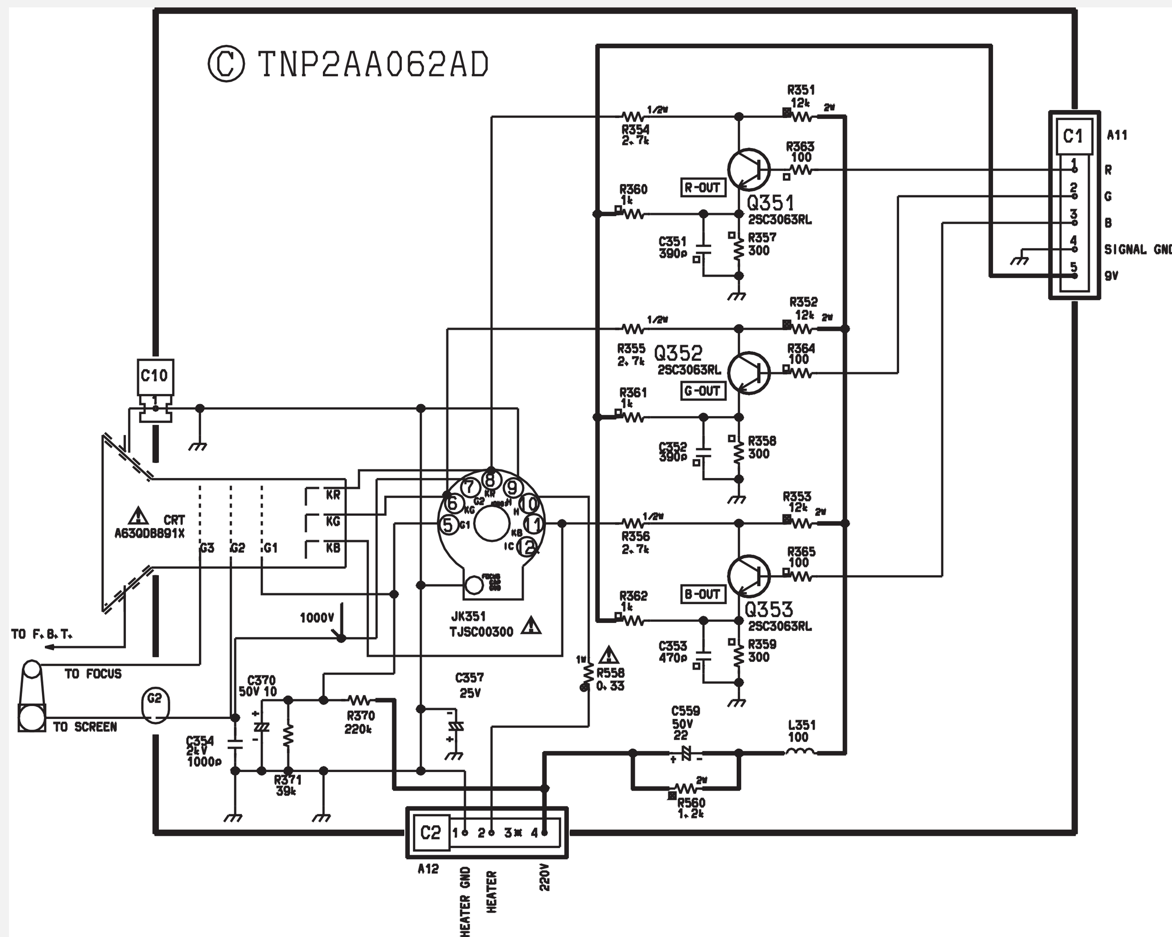
A-Board Schematic & Voltages

CT-25G5B, CT-25G5UB

A	B	C	D	E	F	G	H

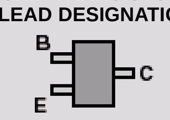
C-Board Schematic

CT-25G5B/UB



C-Board Voltage Measurements (Transistors)

	Q351	Q352	Q353
B	3.53	3.42	3.41
C	148.07	152.40	152.40
E	3.28	3.15	3.15

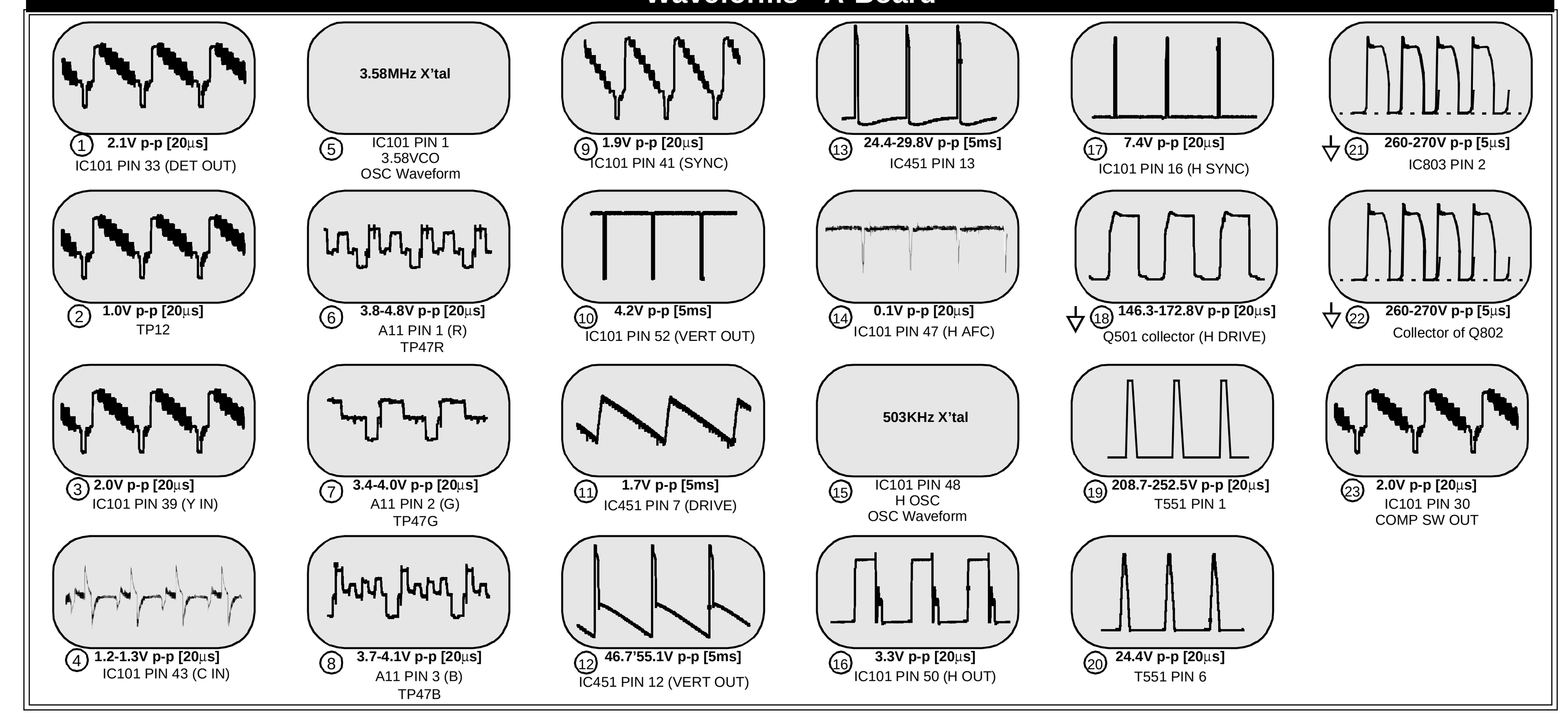


Notes:

Obtained voltages using a digital multimeter.

The board layout has been modified to enhance and display traces otherwise hidden by a mask.

Waveforms - A-Board



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